



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

Sn

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,700	07/31/2001	Keith Rieken	009824-0043-999	5376
20583	7590	03/29/2005	EXAMINER	
JONES DAY 222 EAST 41ST ST NEW YORK, NY 10017			KUMAR, PANKAJ	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/919,700

**Applicant(s)**

RIEKEN, KEITH

**Examiner**

Pankaj Kumar

**Art Unit**

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,8 and 9 is/are rejected.
- 7) ☒ Claim(s) 2,3,6,7,10 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/1/2002</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: Please specify in the cross reference to related applications, the patent application numbers if they have not been patented yet, or the patent numbers if they have been patented.

Appropriate correction is required.

### ***Claim Objections***

2. Claims 4-7 are objected to because of the following informalities:
  - a. claim 4 is objected to since next dwell lookup table is not previously defined so it should probably be written as a next dwell lookup table instead of said next dwell lookup table.
  - b. claims 5-7 are objected to since plurality of multiplexers has not been previously defined so it should be written as a plurality of multiplexers instead of said plurality of multiplexers.
3. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4, 5, 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung USPN 5,440,597 in view of Rainish USPN 6788708.

6. As per claim 1: An apparatus for performing searches of a known code sequence space in a spread spectrum system, comprising: a multi-dwell table (Chung fig. 5: 16, 18) for storing energy estimates, a finger control table (Chung figs. 2, 5: storage in fig.2 is a finger control table; PN generator 14 is outputting a series of values and hence a table; PN generator 14 controls the finger since it controls the code of the phase being sent to the mixer and Rainish teaches that a finger is a reflection and a reflection is a change in phase of the signal); a next dwell table (Chung fig. 2: table of  $i \cdot tD$  where  $i$  is from 1 to  $q$  and  $t$  is selected based on the result); and a comparator (Chung fig. 5: 20, 33, 36); wherein said finger control table (Chung figs. 2, 5: storage in fig.2 is a finger control table; PN generator 14 is outputting a series of values and hence a table; PN generator 14 controls the finger since it controls the code of the phase being sent to the mixer and Rainish teaches that a finger is a reflection and a reflection is a change in phase of the signal) selects an energy estimate output (Chung fig. 5:  $Z_i, Z_i$ ) from said multi-dwell table (Chung fig. 5: 16, 18); wherein said comparator (Chung fig. 5: 20, 33, 36) compares said energy estimate (Chung fig. 5:  $Z_i, Z_i$ ) output from said multi-dwell table (Chung fig. 5: 16, 18) to a magnitude of finger value (not in Chung but it would be obvious as explained below) to generate a threshold comparison result (Chung fig. 5: outputs of 20, 33, 36), and wherein said threshold comparison result (Chung fig. 5: outputs of 20, 33, 36) is used to select a next state output (Chung fig. 5: during and after the comparisons, if certain criteria such as in 26 yields a "no" output, then the next  $i$  is selected in 28) from said next dwell table (Chung fig. 2: table of  $i \cdot tD$  where  $i$  is from 1 to  $q$  and  $t$  is selected based on the result).

Art Unit: 2631

7. Chung does not teach to compare multi-dwell table output to a finger value. Rainish teaches to compare multi-dwell table output (Rainish 6788708 col. 3 lines 15-20: sampled data is the sampled energy of the data and hence the claimed energy estimate; dual dwell procedure is done on the R array or claimed table; col. 4 lines 30-36: dual dwell is done on PN loadings having metric values and the PN loadings are selected by local PN loading selector) to a finger value (Rainish col. 10 lines 1-28 is the threshold that is used for comparison and this threshold is generated with the finger value  $R(t)$ ; col. 2 lines 36-45; col. 4 lines 30-35: comparison by selecting PN loadings based on threshold).

8. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at comparing multi-dwell table output to a finger value as indicated by the instant claims, because the combined teaching of Chung with Rainish suggest comparing multi-dwell table output to a finger value as indicated by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Chung with Rainish because Chung suggests comparison of energy estimates in elements 20, 33, 36 in fig. 5 (something broad) in general and Rainish suggests the beneficial use of comparison using the threshold developed based on the finger value (Rainish col. 10 lines 1-28 is the threshold that is used for comparison and this threshold is generated with the finger value  $R(t)$ ; col. 2 lines 36-45; col. 4 lines 30-35: comparison by selecting PN loadings based on threshold) such as selecting PN's for synchronization (Rainish col. 1 lines 33-34) based on the best value for the metrics (Rainish col. 4 lines 30-36) determined via a comparison with a threshold (Rainish col. 10 lines 1-28) for the purpose of dual dwelling in the analogous art of synchronizing code based on multi-dwellings.

Art Unit: 2631

9. Chung teaches the PN generator 14 and that there is a code phase update in fig. 2 which is equivalent to controlling the finger. But even if one does not believe the code phase update is controlling the finger, it would have been obvious of Chung to teach finger control in view of Rainish. Rainish 6788708 teaches in col. 2 line 37 that a signal reflection is called a finger and a signal reflection is merely a change in phase of a signal as the signal is reflected off an object.

10. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the finger control as recited by the instant claims, because the combined teaching of Chung with Rainish suggest finger control as recited by the instant claims.

Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Chung with Rainish because Chung suggests phase update (something broad) in general and Rainish suggests the beneficial use of phase change or signal reflection also called a finger (Rainish col. 2 line 37) such as choosing the most significant finger (Rainish col. 2 line 40) to generate  $R(t)$  (Rainish col. 2 line 45, equation 3) which is used to generate metrics (Rainish col. 3 equation 4, 5) for the purpose of dual dwelling in the analogous art of synchronizing code based on multi-dwellings.

11. The searches of a known code sequence space recitation is not afforded patentable weight since the recitation occurs in the preamble and recites the intended use of a structure and the body of claim does not depend on the preamble for completeness and the bodily limitations are able to stand alone. Thus, the bodily limitations do not require searches of a known code sequence space as the bodily limitations can be comprised in an acquisition and synchronization system such as the ones in Chung and Rainish.

Art Unit: 2631

12. As per claim 4: The apparatus of claim 1, wherein said next dwell look up table (Chung fig. 2: table of  $i \cdot tD$  where  $i$  is from 1 to  $q$  and  $t$  is selected based on the result) includes next dwell information (Chung figs. 2, 5: next  $i$ ) for a set of virtual fingers (Chung figs. 2, 5: phases or fingers are virtual since the next finger or phase still needs to be analyzed and has not yet been analyzed) in said spread spectrum system (Chung col. 1 lines 15-16).

13. As per claim 5: The apparatus of claim 1, wherein said second of said plurality of multiplexers (Chung fig. 5: 12; fig. 1: received code signal going into a plurality of multiplexers) includes select nodes (Chung fig. 5: bottom input of 12; fig. 1: top input into the multiplexers) and input nodes (Chung fig. 5: left input of 12; fig. 1: received code signal going into a plurality of multiplexers).

14. As per claim 8: The apparatus of claim 1, wherein said plurality of output control signals include a hard hit signal (Chung fig. 5: yes output out of 26) and an offset control signal (Chung fig. 5: "no" output of 26 offsets the  $i$  by 1 which will offset the phase).

15. As per claim 9: A method for performing searches of a known code sequence space in a spread spectrum system, comprising the steps of: selecting an energy estimate (Chung fig. 5:  $Z_i$ ,  $Z.i$ ) from a multi-dwell table (Chung fig. 5: 16, 18) using current dwell state information (Chung figs. 2, 5: code phase where 16 and 18 are currently dwelling) in a finger control table (Chung fig. 5: 14; fig. 2: storage in fig. 2 is a finger control table; local PN generator; table since there are multiple outputs over time; controls the finger since controlling the phase of the code going to

Art Unit: 2631

the mixer), generating a threshold comparison signal (Chung fig. 5: outputs of 20, 33, 36); coupling said threshold comparison signal (Chung fig. 5: outputs of 20, 33, 36) and a current dwell state signal (Chung figs. 2, 5: code phase where 16 and 18 are currently dwelling is provided by the bottom input signal into mixer 12) to obtain a coupled signal (Chung fig. 5: output of 26 to 28); using said coupled signal (Chung fig. 5, 2: output from 26 is coupled to 28 to change the i) to select an output from a next dwell table (Chung fig. 2: table of  $i \cdot tD$  where  $i$  is from 1 to  $q$  and  $t$  is selected based on the result); and applying the output from the next dwell table (Chung fig. 2: table of  $i \cdot tD$  where  $i$  is from 1 to  $q$ ) to the finger control table (Chung figs. 2, 5: storage in fig.2 is a finger control table; PN generator 14 is outputting a series of values and hence a table; PN generator 14 controls the finger since it controls the code of the phase being sent to the mixer and Rainish teaches that a finger is a reflection and a reflection is a change in phase of the signal) to update current dwell state information (Chung fig. 5: output of 14 is updating the code with which the system dwells on the output of the mixer 12 with).

16. Chung teaches the PN generator 14 and that there is a code phase update in fig. 2 which is equivalent to controlling the finger. But even if one does not believe the code phase update is controlling the finger, it would have been obvious of Chung to teach finger control in view of Rainish. Rainish 6788708 teaches in col. 2 line 37 that a signal reflection is called a finger and a signal reflection is merely a change in phase of a signal as the signal is reflected off an object.

17. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the finger control as recited by the instant claims, because the combined teaching of Chung with Rainish suggest finger control as recited by the instant claims.

Furthermore, one of ordinary skill in the art, would have been motivated to combine the



Art Unit: 2631

teachings of Chung with Rainish because Chung suggests phase update (something broad) in general and Rainish suggests the beneficial use of phase change or signal reflection also called a finger (Rainish col. 2 line 37) such as choosing the most significant finger (Rainish col. 2 line 40) to generate  $R(t)$  (Rainish col. 2 line 45, equation 3) which is used to generate metrics (Rainish col. 3 equation 4, 5) for the purpose of dual dwelling in the analogous art of synchronizing code based on multi-dwellings.

18. The searches of a known code sequence space recitation is not afforded patentable weight since the recitation occurs in the preamble and recites the intended use of a structure and the body of claim does not depend on the preamble for completeness and the bodily limitations are able to stand alone. Thus, the bodily limitations do not require searches of a known code sequence space as the bodily limitations can be comprised in an acquisition and synchronization system such as the ones in Chung and Rainish.

***Allowable Subject Matter***

19. Claims 6, 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and also rewritten to overcome the objections cited in the claim objections section in this action.

20. Claims 2, 3, 10, 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Art Unit: 2631

***Conclusion***

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (571) 272-3011. The examiner can normally be reached on Mon, Tues, Thurs and Fri after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Pankaj Kumar  
Patent Examiner  
Art Unit 2631

PK